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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/929,513	08/13/2001	Vivian F. Liu	23US	8239
7590 09/22/2004			EXAMINER	
MDS Sciex 1170 Veteran's Blvd. Suite 200 South San Francisco, CA 94080			YANG, NELSON C	
			ART UNIT	PAPER NUMBER
			1641	

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary**Application No.**

09/929,513

Applicant(s)

LIU ET AL.

Examiner

Nelson Yang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

- I. Applicant's amendment of claims 11-13, 15, 16, 18, 19 is acknowledged and has been entered.
1. Applicant's amendment of the specification is acknowledged and has been entered.
2. Claims 11-20 are pending.

Rejections Withdrawn

- II. Applicant's arguments, see page 4, filed June 28, 2004, with respect to the rejections of claims 11-20 under 35 U.S.C. 112, second paragraph, have been fully considered and are persuasive. The rejection of claims 11-20 under 35 U.S.C. 112, second paragraph, has been withdrawn.
3. Applicant's arguments that the claims of the prior art applications do not teach plating cells in a sample containing structure, see page 6-7, filed June 28, 2004, with respect to the rejections of claims 11-20 under nonstatutory double patenting, have been fully considered and are persuasive. The nonstatutory double patenting rejection of claims 11-20 has been withdrawn.

Claim Rejections - 35 USC § 102

- III. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 11-14, 16, and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Hefti [US 6,566,079].

With respect to claim 11, Hefti teaches a method comprising a sample containing structure (fig. 1A) containing a sample comprising a ligand which may be contained within a molecular binding region which is electromagnetically coupled to a portion of a signal path, where the ligand may comprise cells, cellular constituents, cell membranes, cell adhesion molecules, organelles and synthetic analogues thereof (column 6, lines 20-24, 35-40). A protein is contacted with the ligand, and a response signal is detected, indicating a binding complex formed between the protein and the ligand, where the response signal results from coupling of the propagated signal to said protein, said ligand or said complex (claim 1, column 17, line 16). Coplanar waveguides may be used for propagation of the electromagnetic transmission signal, where transmission lines are formed from a material which can support the propagation of a signal over the desired frequency of operation (column 12, lines 20-40). The signal path may structurally comprise a signal plane consisting of a conductive layer or region, such as transmission lines, a ground plane, or a combination of both structures (column 9, lines 28-56). In particular, Hefti teaches a molecular binding region comprising cells that are coupled to the signal path (column 17, lines 40-50), where the coupling may involve a direct or indirect physical connection (cell plating) (column 10, lines 1-6).

5. With respect to claims 12-14, 16, Hefti teaches a specific embodiment where a detectable binding complex is only formed if a test ligand is able to bind to a receptor in a cell and trigger the expression of a reporter molecule which then binds to form the detectable binding complex (column 51, lines 1-5).

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6. With respect to claim 18, Hefti defines samples as including cells taken from any mammal (column 9, lines 1-10).

Claim Rejections - 35 USC § 103

IV. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hefti [US 6,566,079] in view of Bodner et al [US 6,461,808].

Hefti teaches detecting cellular events, as discussed above. Hefti further teaches detecting changes such as binding events pH changes, temperature, ionic strength and the like (column 17, lines 50-56). Hefti fails to specifically teach detecting opening or closing of an ion channel.

Bodner et al, however, do teach detecting a change in amount of a substance (ions) present in the cell (opening and closing of ion channels) as a result of the presence of a test substance (antiligand) in a medium containing the cell (column 2, lines 49-67 and column 3, lines 13-41, claim 1). Bodner et al further teach that this methodology allows for the prediction of molecular and cellular events of biological and pharmaceutical importance that occur in physiological situations, such as in a cellular or subcellular membrane or in the cytosol of a cell (column 3, lines 43-50).

Therefore, it would have been obvious to detect the opening or closing of ion channels, as suggested by Bodner et al, in the method of Hefti et al, in order to allow for the prediction of

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molecular and cellular events of biological and pharmaceutical importance that occur in physiological situations, such as in a cellular or subcellular membrane or in the cytosol of a cell.

8. With respect to claim 20, Bodner et al further teach a step of verifying the method by correlating with a known cellular activity of a known substance (claim 2).
9. Claims 15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hefti [US 6,566,079] in view of Zang-Gandor [Zang-Gandor, Improved transfection of CHO cells, 1997, QIAGENnews, 4, 15-18].

Hefti teaches the use of samples comprising cells from mammals, as discussed above. Hefti does not teach the use of CHO wild-type cells.

Zang-Gandor, however, teach that CHO SSF cell lines are able to proliferate as suspension cultures in serum- and protein-free mediums, providing many advantages for economical, large-scale cultivation without expensive additives (p.15, pg.2 – p.l6, pg.1).

Therefore it would have been obvious to use CHO wild-type cells as suggested by Zang-Gandor in the method of Hefti, in order to achieve economical, large scale cultivation without incurring expensive additives.

Response to Arguments

- V. Applicant's arguments with respect to claims 11-20 under 35 U.S.C. 102 and 35 U.S.C. 103(a) have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

- VI. No claims are allowed.

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10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nelson Yang whose telephone number is (571) 272-0826. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long V Le can be reached on (571)272-0823. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nelson Yang
Patent Examiner
Art Unit 1641



LONG V. LE
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09/17/07